

6.(Cancelled)

7.(Cancelled)

8.(New)        A two-stage amplifier that provides a two-stage amplifier output signal, said two-stage amplifier comprising:

        a first amplifier stage that receives a first amplifier input signal, and provides a first amplifier output signal;

        a second amplifier stage that includes a second amplifier input lead, and provides the two-stage amplifier output signal;

        a coupling capacitor having a first lead and a second lead, wherein said first lead receives said first amplifier output signal, and said second lead is connected to said second amplifier input lead such that said coupling capacitor is connected in series between said first and second amplifier stages; and

        means for generating a bias voltage that is applied to said coupling capacitor to maintain the voltage across said coupling capacitor constant, wherein

        said two-stage amplifier output signal is feedback and coupled to an input signal to provide said first amplifier input signal.

9.(New)        The two-stage amplifier of claim 8, comprising an integrated voltage source that provides a reference voltage to said means for generating.

10.(New) The two-stage amplifier of claim 9, wherein said means for generating provides said bias voltage to maintain a fixed ratio between said reference voltage and said first amplifier input signal.

11.(New) The two-stage amplifier of 8, wherein said first amplifier stage includes a transconductance amplifier.

12.(New) The two-stage amplifier of claim 11, comprising a compensation capacitor that is connected electrically parallel to the input of said second amplifier stage.

13.(New) The two-stage amplifier of claim 11, wherein said means for generating said bias voltage comprises:

a pump generator that is responsive to a reference signal and a clock signal, and provides a first clock pulse on a first pump generator output lead and a second pump clock pulse on a second pump generator output lead;

a first capacitor having a third lead and a fourth lead, wherein said third lead is connected to said first pump generator output lead;

a second capacitor having a fifth lead and a sixth lead, wherein said fifth lead is connected to said second pump generator output lead; and

a switching element that is coupled to said fourth lead and said sixth lead and provides a first pump current to said first lead and a second pump current to said second lead.

14.(New) The two-stage amplifier of claim 12, wherein the value of said coupling capacitor is less than the value of said compensation capacitor.

15.(New) A two-stage amplifier that provides a two-stage amplifier output signal, said two-stage amplifier comprising:

a first amplifier stage that receives a first amplifier input signal, and provides a first amplifier output signal;

a second amplifier stage that includes a second amplifier input, and provides the two-stage amplifier output signal;

a coupling capacitor having a first lead and a second lead, wherein said first lead receives said first amplifier output signal, and said second lead is connected to said second amplifier input lead such that said coupling capacitor is connected in series between said first and second amplifier stages;

a charge pump that generates a bias voltage that is applied to said coupling capacitor to maintain the time average of the voltage across said coupling capacitor constant; and

a voltage source that provides a reference voltage to said charge pump,

wherein said charge pump includes means for generating said bias voltage to maintain a fixed ratio between said reference voltage and said first amplifier input signal.

16. (New) The two-stage amplifier of claim 15, comprising a compensation capacitor that is connected electrically parallel to the input of said second amplifier stage.

17. (New) The two-stage amplifier of claim 15, wherein said two-stage amplifier output signal is feedback and coupled to an input signal to provide said first amplifier input signal.

18. (New) The two-stage amplifier of claim 16, wherein the value of said coupling capacitor is less than the value of said compensation capacitor.

19. (New) A two-stage amplifier that provides a two-stage amplifier output signal, said two-stage amplifier comprising:

a first amplifier stage that receives a first amplifier input signal, and provides a first amplifier output signal;

a second amplifier stage that includes a second amplifier input lead, and provides the two-stage amplifier output signal;

a coupling capacitor having a first lead and a second lead, wherein said first lead receives said first amplifier output signal, and said second lead is connected to said second amplifier input lead such that said coupling capacitor is connected in series between said first and second amplifier stages; and

a charge pump coupled to said coupling capacitor via said to maintain the voltage across said coupling capacitor constant.

20. (New) The two-stage amplifier of 19, comprising a compensation capacitor that is connected electrically in parallel to the input of said second amplifier stage.

21. (New) The two-stage amplifier of claim 19, wherein said charge pump comprises:

a pump generator that is responsive to a reference signal and a clock signal, and provides a first clock pulse on a first pump generator output lead and a second pump clock pulse on a second pump generator output lead;

a first capacitor having a third lead and a fourth lead, wherein said third lead is connected to said first pump generator output lead;

a second capacitor having a fifth lead and a sixth lead, wherein said fifth lead is connected to said second pump generator output lead; and

a switching element that is coupled to said fourth lead and said sixth lead and provides a first pump current to said first lead and a second pump current to said second lead.

22. (New) The two-stage amplifier of claim 20, wherein the value of said coupling capacitor is less than the value of said compensation capacitor.

23. (New) The two-stage amplifier of claim 19, comprising an integrated voltage source that provides a reference voltage to said charge pump.

24. (New) The two-stage amplifier of claim 19, wherein said charge pump includes means for generating said bias voltage to maintain a fixed ratio between said reference voltage and said first amplifier input signal.

25. (New) The two-stage amplifier of claim 19, wherein said two-stage amplifier output signal is feedback and coupled to an input signal to provide said first amplifier input signal.

26. (New) The two-stage amplifier of claim 25, wherein current flows from said first amplifier stage, until the value of said input signal is equal to zero.